CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.13/GNR/WMM/Gradation/2015-16

17.02.2016

GRADATION FOR WMM

MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Mr. G.N. Ramesh,**
No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Layout, Bangalore - 560 021.

Name of Work : Improvements and Asphalting of Ravindranagara 1st Main and 2nd Main Roads in Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO.366/2014-15 Dated: 31.03.2015

Date of Testing : 17.02.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8105**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	130	130	1.6	98.4	95-100
22.4	2615	2745	33.9	66.1	60-80
11.2	1180	3925	48.4	51.6	40-60
4.75	1120	5045	62.2	37.8	25-40
2.36	990	6035	74.5	25.5	15-30
0.600	890	6925	85.4	14.6	8-22
0.075	800	7725	95.3	4.7	0-8

Note:

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Job No.: CTCE/BBMP/W.No.13/GNR/WMM/AIV/2015-16 18.02.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Layout, Bangalore - 560 021.
Name of the Work	Improvements and Asphalting of Ravindranagara 1st Main and 2nd Main Roads in Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO.366/2014-15 Dated: 31.03.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	18.02.2016

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Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	307	
4	Aggregate Impact value = percent fines	22.62	21.68	
	100* (W_2/W_1)%			**22.15**

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Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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T-2377

Job No.: CTCE/BBMP/W.No.13/GNR/CSR-02/1075c/Pre Cast Slab/2015-16

20.02.2016

TEST REPORT ON CONCRETE CORE (PRE CAST SLAB)

* Name of Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Name of Agency	:	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Layout, Bangalore - 560 021.
* Name of work	:	Improvements and Asphalting of Ravindranagara 1st Main and 2nd Main Roads in Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	:	EE/DD/WO.366/2014-15 Dated: 31.03.2015
Techinical Reference	:	IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample ID	:	Pre cast slab
Sample Received on	:	18.02.2016
Date of Testing	:	20.02.2016

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	78.00	0.386	2520.36	1.56	0.960	32.00	16.30	17.60	16.90	21.12
2	50.00	83.00	0.413	2534.21	1.66	0.970	32.50	16.55	17.88	17.34	21.67
3	50.00	80.00	0.397	2527.38	1.60	0.965	33.60	17.11	18.48	17.83	22.29

* Information is furnished by the Customer/Representative

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VISHWANATH .C
Quality Manager

AE W.13

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Job No.: CTCE/BBMP/W.No.13/GNR/BC/AIV/2015-16 15.03.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Layout, Bangalore - 560 021.
Name of the Work	Improvements and Asphalting of Ravindranagara 1st Main and 2nd Main Roads in Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO.366/2014-15 Dated: 31.03.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	15.03.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	375	376	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	75	76	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	20.00	20.21	**20.11**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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AE W.13 15/3

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Job No.: CTCE/BBMP/W.No.13/GNR/BC/Sp_Wa/2015-16

16.03.2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Layout, Bangalore - 560 021.
Name of the Work	Improvements and Asphalting of Ravindranagara 1st Main and 2nd Main Roads in Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO.366/2014-15 Dated: 31.03.2015
Type of Mix	Bituminous Concrete
Date of Testing	16.03.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	1994	1995	1996	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1241	
4	Weight of saturated surface dry aggregate in air	W_3 g	2014	2015	2016	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	775	777	775	
6	Weight of oven dried aggregate	W_4 g	1998	1999	2000	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.578	2.573	2.581	2.577
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.632	2.627	2.635	2.631
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.80%	0.80%	0.80%	0.80%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CTCE/BBMP/W.No.13/GNR/BC/Bitumen/2015-16 16.03.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. G.N. Ramesh,** No.01, 3rd Main, Gandhi Grama, 7th Cross, Maruthi Layout, Bangalore - 560 021.
NAME OF THE WORK	Improvements and Asphalting of Ravindranagara 1st Main and 2nd Main Roads in Ward No.13, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO.366/2014-15 Dated: 31.03.2015
SAMPLE I/D	Roads in Ravindranagara, Ward No.13.
DATE OF TESTING	16.03.2016

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GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	46.33	9.77	9.77	90.23	79-100
9.5	31.22	6.59	16.36	83.64	70-88
4.75	70.22	14.81	31.18	68.82	53-71
2.36	65.33	13.78	44.96	55.04	42-58
1.18	48.32	10.19	55.15	44.85	34-48
0.6	53.32	11.25	66.40	33.60	26-38
0.3	45.36	9.57	75.97	24.03	18-28
0.15	40.26	8.49	84.46	15.54	12-20
0.075	41.32	8.72	93.18	6.82	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.36	7.68	7.68	92.32	79-100
9.5	46.36	9.79	17.47	82.53	70-88
4.75	66.35	14.01	31.48	68.52	53-71
2.36	70.22	14.83	46.31	53.69	42-58
1.18	71.35	15.07	61.38	38.62	34-48
0.6	51.36	10.85	72.23	27.77	26-38
0.3	30.22	6.38	78.61	21.39	18-28
0.15	28.65	6.05	84.66	15.34	12-20
0.075	36.36	7.68	92.34	7.66	4-10

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